IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re patent application of

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Corres. to PCT/EP2003/009585

For: DEVICE FOR CONTROLLING AIR SUPPLY, IN PARTICULAR TO AN EVAPORATOR WITH ACCUMULATING FUNCTION ARRANGED IN A MOTOR VEHICLE

VERIFICATION OF TRANSLATION

Commissioner for Patents
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Sir:

I, Charles Edward SITCH,

Deputy Managing Director of RWS Group Ltd UK Translation Division, of Europa House, Marsham Way, Gerrards Cross, Buckinghamshire, England declare:

That the translator responsible for the attached translation is familiar with both the German and the English language, and that, to the best of RWS Group Ltd knowledge and belief, the English translation of International Application No. PCT/EP2003/009585 is a true, faithful and exact translation of the corresponding German language paper.

I further declare that all the statements made in this declaration of my own knowledge are true and that all statements made on information and belief are believed to be true; and further, that these statements were made with the knowledge that willful, false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful, false statements may jeopardize the validity of legal decisions of any nature based on them.

C Sitch

Date: April 18, 2005

By _____

Name: Charles Edward SITCH

Deputy Managing Director UK Translation Division

For and on behalf of RWS Group Ltd

Device for regulating the air supply, in particular to an evaporator with an accumulator function of a motor vehicle

The invention relates to a device for regulating the air supply, in particular to an evaporator of a motor vehicle, according to the preamble of claim 1.

In known air routings, the regulation of the air flow from a filter to an evaporator, in particular an accumulator evaporator, takes place partially by means of roller blinds or shutters. Regulating devices of this type, although partially affording advantages, particularly in terms of noises, are nevertheless relatively costly, and there is often insufficient construction space upstream of the evaporator.

The object of the invention is to make available an improved device for regulating the air supply.

This object is achieved by means of a device for regulating the air supply, having the features of claim 1. The subclaims relate to advantageous refinements.

According to the invention, the device for regulating the air supply is designed in such a way that the duct conducting the air has three duct branches which are separated from one another by walls running in the longitudinal direction and which can be closed preferably at their front end by means of two flaps cooperating with one another. In this case, at least one duct branch remains unclosed. Preferably three different cooling phases are provided in this case: maximum cooling operation, normal cooling operation and accumulator cooling operation. Thus, in normal cooling operation, the cold accumulator is charged and, in

accumulator cooling operation, that is to say when the engine stops, is discharged.

Preferably, in normal cooling operation, the two flaps close the middle duct branch, the flaps preferably bearing on one another upstream of the middle duct branch, as seen in the longitudinal direction, and forming an acute angle with one another. A design of this type improves the flow profile and brings about an improved air supply to the other two duct branches. Since the middle duct branch is closed, the cold accumulator connected to it can be charged.

Preferably, in maximum cooling operation, the two flaps are oriented in such a way that they prolong the respective wall, so that, once again, there is an optimum air flow and the flow resistance is minimized. This allows an optimum utilization of the entire cold capacity of the evaporator.

Preferably, in stopped-engine operation or accumulator cooling operation, the two flaps are oriented in such a way that they close the outer duct branches, said flaps preferably being arranged at an angle of 90° +/- 10° to the corresponding walls. Furthermore, in accumulator cooling operation, a reduction in the blower power takes place, so that the air throughput is reduced.

The invention is explained in detail below by means of an exemplary embodiment, with reference to the drawing in which:

fig. 1 shows a section through a regulating device according to the invention in normal cooling operation,

fig. 2 shows a section through the regulating device of fig. 1 in maximum cooling operation, and

fig. 3 shows a section through the regulating device of fig. 1 in accumulator cooling operation.

Figs. 1 to 3 show a device 1 for regulating the air supply, which conducts the air coming from a filter 2 through a duct 3, having three duct branches 5 separated from one another by walls 4 running in the longitudinal direction, to an evaporator 6 of a motor vehicle. In this case, the flow profile is indicated by a multiplicity of small arrows. The evaporator 6 is an evaporator with a cold accumulator which is arranged in a middle region of the evaporator 6.

Actual regulation takes place by means of two flaps 7 which are mounted pivotably on the front end of the walls 4, as seen in the air flow direction. In normal cooling operation, illustrated in fig. 1, these two flaps 7 are in a position which completely closes the middle duct branch 5. To optimize the air flow, in this case, the two flaps 7 form a kind of point, so that the air is conducted directly to the other two duct branches 5, at the end of which it then arrives at the evaporator 6, so that the air does not flow through the middle region of the evaporator 6 and the cold accumulator located in this region of the evaporator 6 can be charged.

In the "maximum cooling" position, illustrated in fig. 2, the flaps 5 are opened, that is to say they are brought into a position in which they prolong the respective wall 4, so that they once again allow as optimum a flow profile of the air as possible. In this maximum cooling operation, the air is then supplied to the evaporator 6 over a large area via all three duct branches 5.

In the event of a stopping of the engine (accumulator operation), in which a reduced air throughflow of the evaporator 6, as compared with normal cooling

operation, is desired, the two flaps 5 are swung outward, so that the two outer duct branches 5 are closed and the entire air flows through the middle duct branch 5 and therefore also flows only through the following middle region of the evaporator 6, that is to say the cold accumulator. Furthermore, in accumulator operation, the air throughput is reduced, for example by the lowering of the blower voltage.

List of reference symbols

1	Device
2	Filter
3	Duct
4	Wall
5	Duct branch
6	Evaporator
7	Flap